ROPER WHITNEY USA

MODEL NO. U412 UNIVERSAL BOX AND PAN BRAKE

OPERATION, PARTS & MAINTENANCE MANUAL

Model:	**Purchased From:**
Serial #:	**Date Received:**

MADE IN THE USA

FOREWORD

This manual has been prepared for the owner and operators of Roper Whitney No. U412 brake. Its purpose, aside from operations instructions, is to promote safety through the use of accepted operating procedures. Read all instructions thoroughly before operating the brake.

Also contained in this manual is the parts list for your brake. It is recommended that only Roper Whitney or factory authorized parts be used as replacements.

Warranty Statement:

3 YEAR LIMITED WARRANTY

Roper Whitney ("Manufacturer") warrants, commencing with the date of shipment to first end-user ("Customer") and for a period of thirty-six (36) months thereafter, all machinery and parts manufactured by Manufacturer to be free of defects in workmanship and material. **This warranty remains in force for the above time period only if all of Manufacturer's operational procedures are followed and recommended maintenance is performed**. If, within such warranty period, any machinery or parts manufactured by Manufacturer shall be proved to Manufacturer's satisfaction to be defective, such machinery or parts shall be repaired or replaced, at Manufacturer's option. All warranty claims are made F.O.B Manufacturer's plant, providing such machinery or parts are returned freight prepaid to Manufacturer's plant or designated service center for Manufacturer's inspection. All failed parts or components must be returned to Manufacturer prepaid for inspection before credit will be issued for new parts or components. Manufacturer's obligation hereunder shall be confined to such repair or replacement and does not include any charges, direct or indirect, for removing or replacing defective machinery or parts. No warranty shall apply to machinery, or parts or accessories, which have been furnished, repaired, or altered by others so as, in Manufacturer's judgment, to affect the same adversely or which shall have been subject to negligence, accident or improper care, installation, maintenance, storage, or other than normal use or service, during or after shipment. No warranty shall apply to the cost of repairs made or attempted outside of Manufacturer's plant or designated service center without Manufacturer's authorization. No warranty shall apply with respect to machinery or part not manufactured by Manufacturer, including but not limited to motors, accessories, electrical and hydraulic components, if such machinery or part is subject to warranty by the manufacturer of such machinery or part. No warranty claims by Customer will be honored with respect to any machinery or part from which the name and date plate has been removed or is otherwise no longer located or exhibited on such machinery or part. **THE FOREGOING WARRANTIES ARE IN LIEU OF ALL OTHER WARRANTIES EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OF MERCHANTABILITY AND IMPLIED WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE. MANUFACTURER SHALL NOT BE SUBJECT TO ANY OTHER OBLIGATIONS OR LIABILITIES WHATSOEVER WITH RESPECT TO MACHINERY, PARTS, ACCESSORIES, OR SERVICES MANUFACTURED OR FURNISHED BY IT OR ANY UNDERTAKINGS, ACTS, OR OMISSIONS RELATING THERETO. UNDER NO CIRCUMSTANCES SHALL MANUFACTURER BE LIABLE FOR ANY CONSEQUENTIAL OR OTHER DAMAGES, EXPENSES, LOSSES, OR DELAYS HOW SO EVER CAUSED.**
THERE ARE NO WARRANTIES THAT EXTEND BEYOND THE DESCRIPTION ON THE FACE HEREOF.

Note: Consumable tooling is not covered under the 3 year manufacturer's warranty.

RETURN OF THE PRODUCT REGISTRATION CARD FURNISHED WITH THE PRODUCT IS NECESSARY TO OBTAIN WARRANTY COVERAGE THEREON. CARD MUST BE FULLY COMPLETED, SIGNED BY THE PURCHASER, AND IF APPLICABLE, SIGNED BY THE DISTRIBUTOR. RETURN REGISTRATION CARD TO:

SAFETY INSTRUCTIONS

1. Know the safety and operating instructions contained in this brochure. Become familiar with and understand the limitations of this machine. Always practice safety.

2. Wear approved eye safety protection such as glasses, goggles, etc., when operating the brake to protect your eyes.

3. Wear protective foot wear or safety shoes.

4. Keep your hands clear of the nose bar and clamping area of the brake. Keep hands clear of the apron area of the brake when making bends.

5. When bending capacity material use your legs and arms for making the bend, similar to lifting a heavy object, to avoid back strain. Maximum length and capacity material is a two person job. Adjust the counterweights to provide maximum assistance on heavy bends.

6. Never use a pipe or bar on the clamp handles or apron handles for additional leverage.

7. Do not push or pull on the counterweights during the bending process. The counterweights intended purpose is to reduce the force required to lift the apron.

8. Keep clear of the counterweight and apron swing area while operating the brake.

9. Keep the work area around the brake clear and clean to avoid slipping or tripping.

SAFETY LABELS

Do not operate the U412 Brake without the proper safety labels in place. If your machine is missing the following labels, please contact Roper Whitney Co. or your authorized Roper Whitney distributor to order.

INSTRUCTIONS
MODEL U412 CONNECTICUT FLOOR BRAKE

Level the Brake and shim under the feet to avoid distortion. Fasten firmly in place. The front feet must be well fastened to avoid tipping when bending force is applied to handles. See special notes on leveling Floor Model Hand Brakes.

The Model U412 is rated for bending 48" of 12 gauge mild steel, 1 inch flange, with bending angle and bending bar fastened securely in place. The beam (upper clamping member) may be adjusted to the rear a maximum of 1 1/8". When adjusting to bend 12 gauge material, swing the apron up to 90 degrees and set the beam adjustment to allow a clearance of 3/16" between the apron edge and the radius bar. For lighter material, a clearance of 1 1/2 to 2 times material thickness should be used. Soft aluminum may be formed with clearance equal to material thickness.

Rated capacity for stainless steel is 16 gauge. Clearance should be at least twice material thickness.

Removing the bending angle for narrow or offset bends, reduces capacity to 16 gauge mild steel. Removing both bending angle and bending bar reduces capacity to 20 gauge. Avoid using the brake without the bending bar as much as possible as the bar is made of tough material to protect the apron edge from wear.

Clamping pressure is controlled by nuts on the lower end of the toggle bolt. This pressure should be adjusted with a small piece of material to be bent clamped in each end of the machine. Move the nuts so that the levers (No. 10 & 11), pull against the stops with an equal effort. Excessive clamping pressure is not required. Use only enough to hold the material firmly in the brake.

These Brakes are not intended for bending rods, wires, multiple thicknesses or across lock seams. Operations of this type will result in denting the edge of the apron and springing the machine out of line.

Lubricate the moving parts of the machine with light grease or heavy oil. Lasting accuracy depends on proper lubrication.

SPECIFICATIONS

Length of bed	48"
Capacity on mild steel, 1" flange,	
With bending bar and angle in place	12 ga.
With bending angle removed	16 ga.
With bending bar and angle removed	20 ga.
Minimum reverse bend (bar & angle removed)	1/4"
Maximum lift of beam	1 5/8"
Front to rear adjustment of beam	1 1/8"
Finger Widths	3", 4", 5"
Maximum depth of box	6"
Shipping weight	1400 lbs.
Packing	Wood skids & blocking

NOTES ON LEVELING FLOOR MODEL U412

For proper adjustment, maintaining accuracy, and safety to the operator, the brake must be level and securely bolted to the floor. Do not leave the machine on the original shipping skid.

Preliminary Leveling:

1. Relieve all tension on bed nut (No. 2) and set screw (No. 27).
2. Raise the beam to its maximum height by means of eccentric levers (No. 10 & 11).
3. Using an accurate spirit level or protractor head level on the bed bar (front of bed), shim under the legs until the bed bar is level front to rear and lengthwise, with floor bolts tightened against the shims.

The brake may change shape slightly in transit. Therefore, it is advisable to further check the level as follows:

1. Relieve all tension on beam nuts (No. 1), and set screw (No. 27).
2. Lower the beam onto the bed and loosen nut (No. 33) so there is 1/4" space between bottom of pin (No. 31) and top surface of nut (No. 33).
3. Starting with screws finger tight, take up screws (No. 27) about one full turn.
4. Starting with nuts (No. 1 & 2) finger tight, take up each about 3/4 turn.
5. Looking through from the rear of the brake, the beam and bed should be in contact at the center and showing a crack of light at each end, as in Fig. 1. If there is less light showing at one end, loosen the rear floor bolt at that end and shim under the leg until light shows evenly at both ends.
6. The above steps should result in a level machine, but not necessarily the proper adjustment for your work. To adjust for straight bending and uniform radius, follow the subsequent **PRELOADING ADJUSTMENTS**.

PRELOADING ADJUSTMENTS FOR FLOOR MODEL U412

Remove the shipping skids, bolt the brake to the floor, and level according to NOTES ON LEVELING FLOOR MODEL U412.

Loosen strap bolt nuts (No. 1 & 2). Loosen tie rod screws (No. 27). Raise the beam to maximum height by means of eccentric levers (No. 10 & 11).

The top edge of the apron should be 1/64" below the edge of the bed at the ends. If it is not, the hinge bolts should be adjusted to bring the apron to this position. Tighten hinge bolts securely after this adjustment.

Tighten apron strap bolt (No. 2) until the apron edge is 1/32" above the bed edge at the center. It should remain 1/64" below the bed at the ends.

Take up the tie rod screws (No. 27) about one full turn, starting with finger tight.

Tighten bed strap bolt (No. 2) until the edge of the bed is 1/64" above the top of the apron at center. This should bring apron and bed parallel from end to end, with the bed 1/64" higher.

Beam preloading should be minimal in order to avoid counteracting the preload in the bed. Strap nuts (No. 1) may be tightened from 1/4 to 1/2 turn, starting with finger tight.

The brake now is adjusted for average work. When bending very light material, it may be necessary to reduce preloading in the bed and apron by slacking off strap nuts (No. 2). On full capacity work, preloading of bed and apron may be increased to tighten the bend radius at the center and produce a straight bend. Beam strap nut (No. 1) also is effective in tightening the radius at the center.

Hemming of heavy material may require adding pressure in the center of the beam by tightening nut (No. 1). Excessive clamping pressure by tightening nut (No. 33) will not help. It only defeats the purpose of preloading and puts extreme stress on the toggle (No. 45 & 46). No amount of preloading will compensate for incorrect clamping pressure.

Follow carefully the general instructions for adjusting clamping pressure and clearances for various thicknesses of material. Too little clearance results in sharp bends at the ends, larger radius at the center, and a bend that is not straight. It is better to accept a slightly greater radius in order to get a straight bend.

EXAGGERATED VIEW OF CROWN FROM REAR OF BRAKE

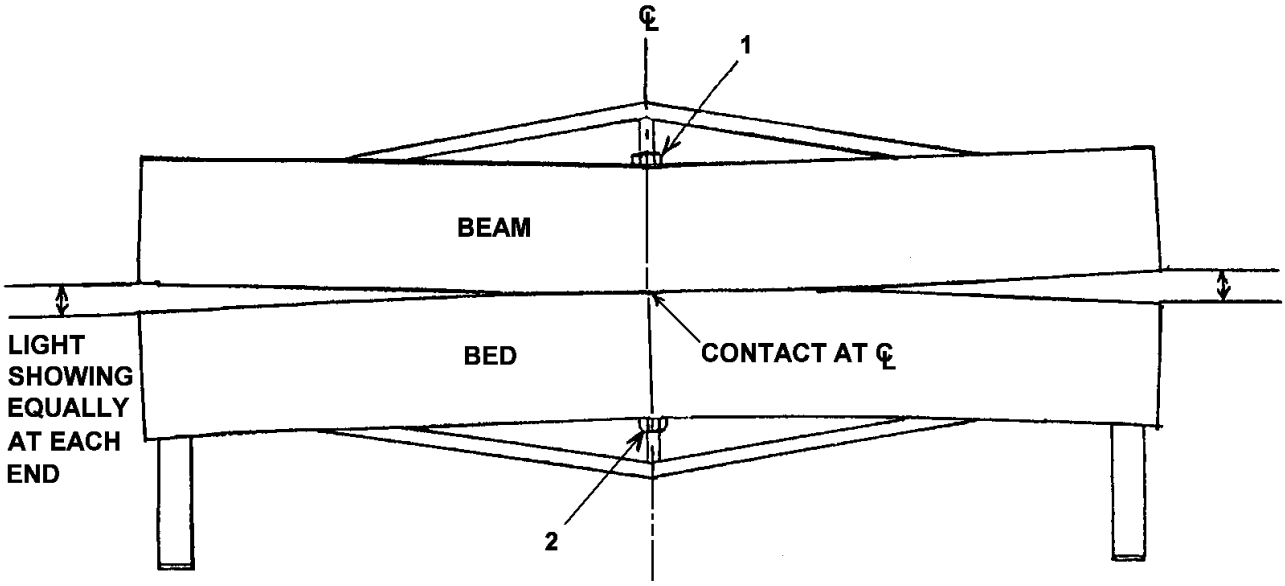


FIG. I

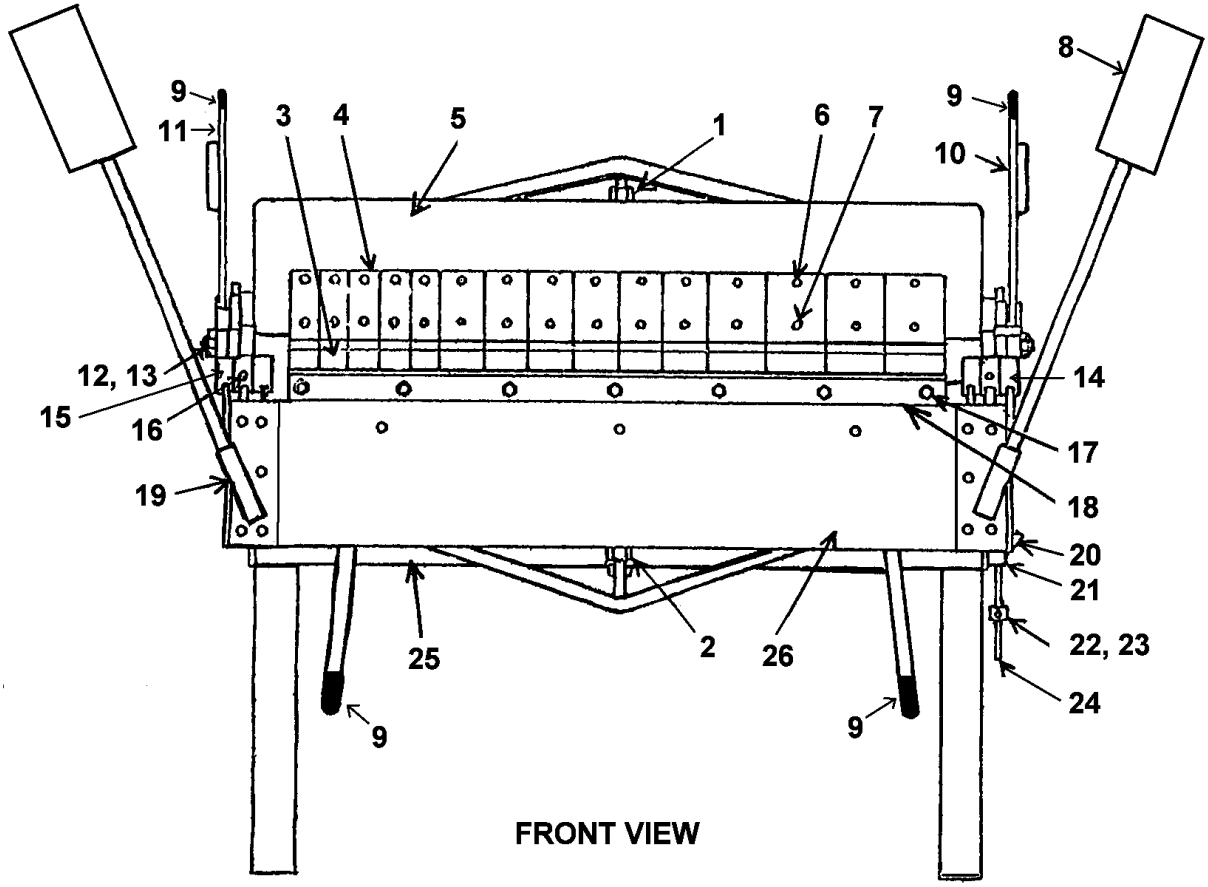
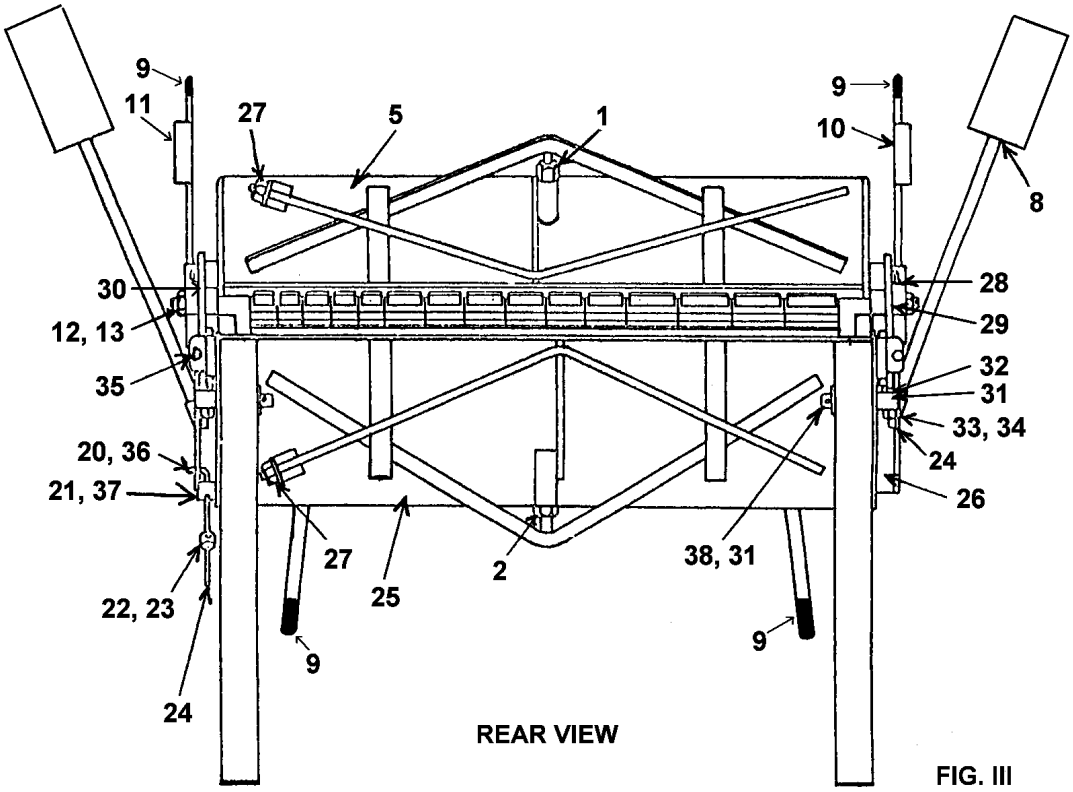
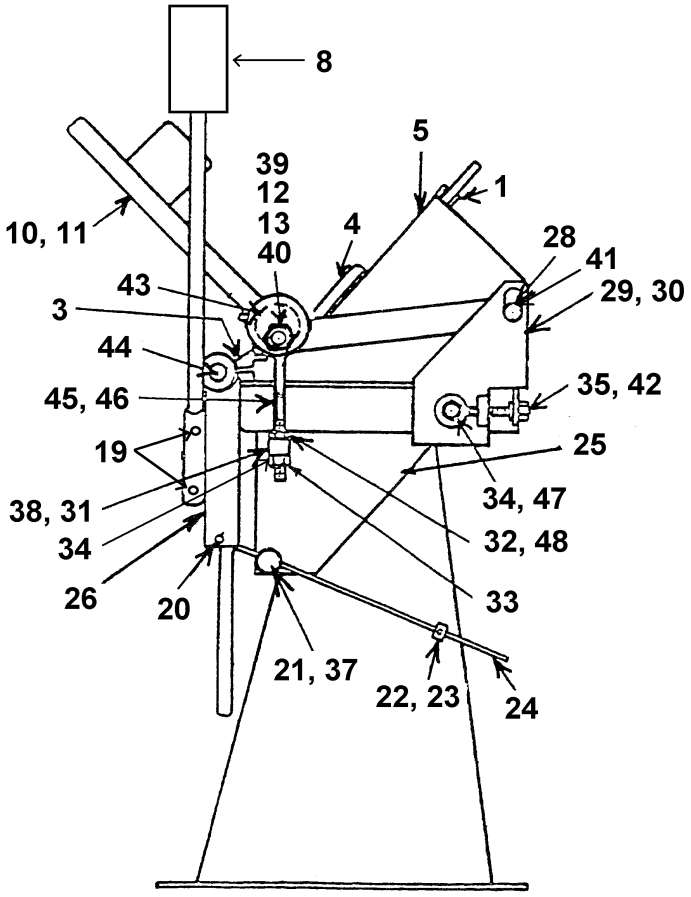


FIG. II



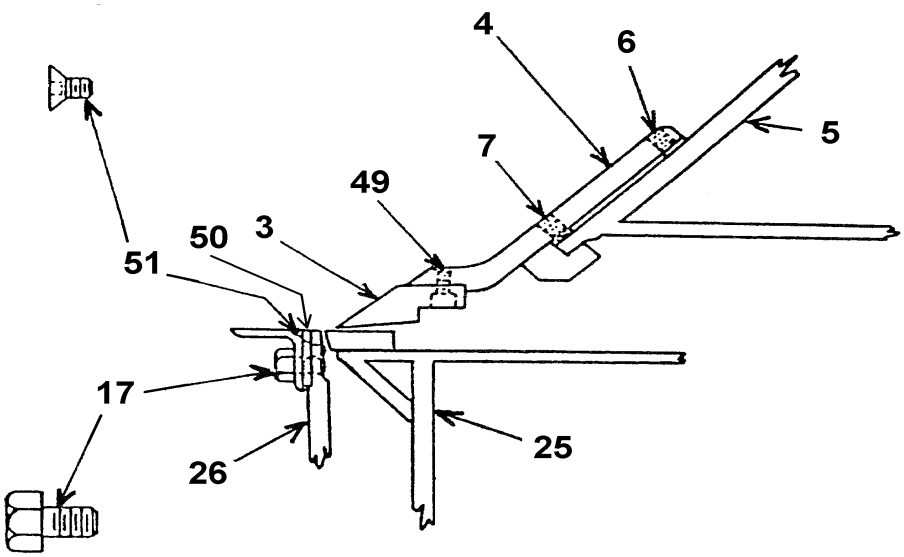
REAR VIEW

FIG. III



END VIEW

FIG. IV



SECTION THRU FINGERS

FIG. V

MODEL U412
PARTS LIST

ITEM NO.	PART NO.	PART NAME
1	657023038	HEX NUT 7/8-9
2	657023038	HEX NUT 7/8-9
3	757360075	FINGER TIP 3”
3	757360076	FINGER TIP 4”
3	757360077	FINGER TIP 5”
4	757010078	FINGER HOLDER ASSY 3”
4	757010079	FINGER HOLDER ASSY 4”
4	757010080	FINGER HOLDER ASSY 5”
5	257020028	BEAM ASSY
6	621012269	SSCP SCREW 1/2-13 X 3/4
7	621012269	SSCP SCREW 1/2-13 X 3/4
8	757280074	COUNTER WEIGHT
9	657356334	PLASTIC BLACK GRIP
10	757030003	RH CLAMPING LEVER
11	757030004	LH CLAMPING LEVER
12	678033112	FLAT WASHER 1”
13	657245118	BEARING 1.0155 ID X 1.625 OD X 1/8
14	457500069	RH APRON HINGE
15	457500070	LH APRON HINGE
16	621012268	SSCP SCREW 1/2-13 X 5/8
17	601012271	HHC SCREW 1/2-13 X 1”
18	757180069	BENDING ANGLE
19	621012266	SSCP SCREW 1/2-13 X 1/2
20	600073501	COTTER PIN 3/32 X 1”
21	757160038	STOP STUD APRON
22	757260072	APRON STOP COLLAR
23	621012125	SSCP SCREW 5/16-18 X 5/16
24	757130036	APRON STOP ROD
25	257090029	BED ASSY
26	257020030	APRON ASSY
27	657023038	HEX NUT 7/8-9
28	757080015	SLIDE PIN BUSHING
29	757730006	LH SLIDE ASSY
30	757730005	RH SLIDE ASSY
31	757160096	LOWER TOGGLE PIN
32	657033154	SPRING WASHER
33	671023010	HEX NUT 3/4-16
34	678033110	FLAT WASHER 3/4
35	611012418	SHC SCREW 3/4-10 X 3”

MODEL U412
PARTS LIST

ITEM NO.	PART NO.	PART NAME
36	600083604	CLEVIS PIN
37	666023007	HEX NYLOCK NUT 1/2-13
38	757080018	LOWER TOGGLE PIN BUSHING
39	679033112	LOCK WASHER
40	657000390	CLAMPING COLLAR
41	656164302	SNAP RING
42	657000280	ADJUSTING SCREW COLLAR
43	757080009	TOGGLE BUSHING
44	757160011	HINGE PIN
45	757860140	RH TOGGLE
46	757860141	LH TOGGLE
47	611012410	SHC SCREW 3/4-10 X 1 1/2
48	645023010	HEX NUT 3/4-16
49	613012133	SHF SCREW 5/16-18 X 1”
50	757030070	BENDING BAR
51	613012128	SHF SCREW 5/16-18 X 1/2